

Abstract

This paper analyzes the regional distribution of climate change mitigation costs in a global cap-and-trade regime. Four stylized burden-sharing rules are considered, ranging from GDP-based permit allocations to schemes that foresee a long-term convergence of per-capita emission permits. The comparison of results from three structurally different hybrid, integrated energy-economy models allows us to derive robust insights as well as identify sources of uncertainty with respect to the regional distribution of the costs of climate change mitigation. We find that regional costs of climate change mitigation may deviate substantially from the global mean. For all models, the mitigation cost average of the four scenarios is higher for China than for the other macro-regions considered. Furthermore, China suffers above-world-average mitigation costs for most burden-sharing rules in the long-term. A decomposition of mitigation costs into (a) primary (domestic) abatement costs and (b) permit trade effects, reveals that the large uncertainty about the future development of carbon prices results in substantial uncertainties about the financial transfers associated with carbon trade for a given allocation scheme. This variation also implies large uncertainty about the regional distribution of climate policy costs.